Geo G

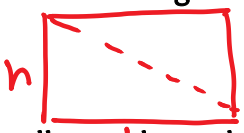
key

10.1 – Areas of Triangles and Parallelograms

Deriving the Formula for *Area of a Triangle:*

Recall the formula for the area of a rectangle: b·h

- How does the base and height of the triangle relate to the original rectangle?



same base and height

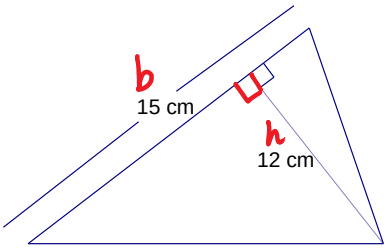
- What does this tell you about the area of the triangle?

Area of a Triangle

$\frac{1}{2}bh$ or $\frac{b \cdot h}{2}$

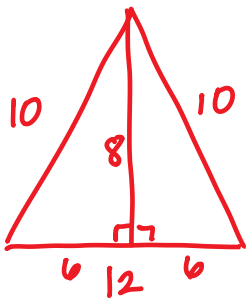
This formula works for any triangle - acute, right, or obtuse. Let's try a few problems!

1) Find the area of the triangle below.



$\frac{1}{2}(12)(15) = 90\ cm^2$

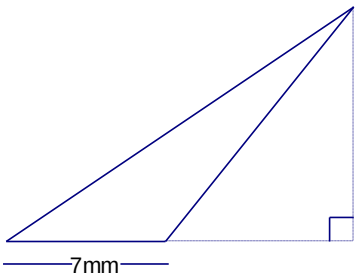
2) Find the area of an isosceles triangle with sides 10, 10, and 12



$\frac{1}{2}(8)(12)$

$48\ u^2$

3) Find the area of the triangle below.



$\frac{8 \cdot 7}{2} = 28\ mm^2$

Deriving the Formula for the *Area of a Parallelogram:*

Recall the formula for the area of a rectangle: $b \cdot h$

- How does the base and height of the parallelogram relate to the original rectangle?

same area

- What does this tell you about the area of the parallelogram

Area of a Parallelogram

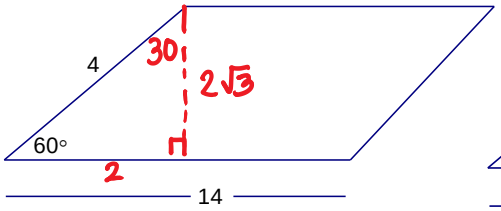
$$A = b \cdot h$$

Let's try a few problems!

1) Find the area of a parallelogram with a base of 16 and height of 8

$A = 16 \cdot 8$
$= 128\ u^2$

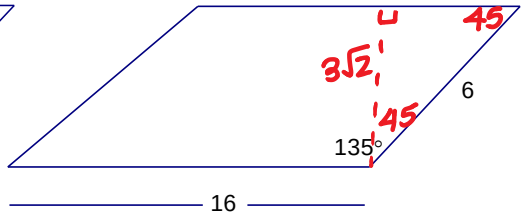
2)



$A = 14 \cdot 2\sqrt{3}$
$28\sqrt{3}\ u^2$

3)

$\frac{6}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$ $\frac{6\sqrt{2}}{2}$ $3\sqrt{2}$



$A = 3\sqrt{2} \cdot 16$
$48\sqrt{2}\ u^2$